

**FIRST REPORT OF *IXODES AURITULUS* NEUMANN
(ACARI: IXODIDA: IXODIDAE) FROM THE BLACKISH
CINCLODES, *CINCLODES ANTARCTICUS* (GARNOT) (AVES:
PASSERIFORMES: FURNARIIDAE), WITH ADDITIONAL RECORDS OF
PARASITISM OF *CINCLODES* SPP. BY THIS TICK SPECIES**

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Abstract.—An engorged adult female of the tick *Ixodes auritulus* (Acari: Ixodida: Ixodidae) is reported from a nestling of *Cinclodes antarcticus* (Aves: Passeriformes: Furnariidae) on Isla Gonzalo, Diego Ramírez Archipelago, off Chile's southernmost coast. Additional collections of *I. auritulus* are described from *C. fuscus* in Perú and southern Chile (Navarino Island), and from *C. patagonicus* in southern Argentina (Tierra del Fuego). These are the first published records of any tick species from members of the genus *Cinclodes*, which comprises about 13 species of ground- or hole-nesting ovenbirds in the Andes and Patagonia.

Key Words: *Ixodes*, Acari, tick, *Cinclodes*, Aves, Diego Ramírez, Chile

The American Museum of Natural History (AMNH) has acquired a single fully engorged (overall length 8.5 mm, width 4.5 mm) female tick specimen that had been removed by one of us (FV) on 1 December 1985 from the neck of a dead nestling blackish cinclodes, *Cinclodes antarcticus* (Garnot) (Aves: Passeriformes: Furnariidae), found away from its nest at the bottom of a nesting burrow on Isla Gonzalo, the second largest of southernmost Chile's Islas Diego Ramírez (56.30S, 68.44W). The geography, vascular flora, and vertebrate fauna of these remote islands have been described by Pisano (1972) and Pisano and Schlatter (1981a, b). This was the only *C. antarcticus* nest found by us on Isla Gonzalo, and it contained three nestlings, now

in the ornithological collections of the AMNH (numbers 817070–817072). Because their gonads were not detectable anatomically, the sex of these nestlings could not be determined by dissection. Two nestlings (AMNH 817070, body mass 63.4 g; AMNH 817071, body mass 60.5 g) were alive when collected and had been actively fed by both parent birds. However, the parasitized nestling (AMNH 817072; body mass 47.5 g) apparently succumbed to starvation after wandering from the nest to the burrow, where the parents may have failed to feed it.

The tick specimen's unique suite of characters (hypostomal dentition 5/5 apically; palpal segment I with large, anteriorly directed process; scutum with sparse, shallow

punctations) enabled us to immediately identify it as *Ixodes (Multidentatus) auritulus* Neumann, a regular parasite of passeriform, galliform and, less often, ciconiiform (*sensu* Monroe and Sibley 1993) birds throughout the Western Hemisphere (Cooley and Kohls 1945, Arzua et al. 1994, Foster et al. 1996, Arzua and Barros-Battesti 1999). The specimens in the type series of *I. auritulus* came from Punta Arenas, southern Chile, but the host bird was not identified (Neumann 1904). Among the passeriform birds parasitized by *I. auritulus* in South America are species in the suboscine families Conopophagidae, Formicariidae, Furnariidae and Tyrannidae, and the oscine families Parulidae, Thraupidae and Turdidae (Arzua and Barros-Battesti 1999, who followed the familial nomenclature of Meyer de Schauensee "1983" [1982]). Outside the Americas, *I. auritulus* has been recorded from Antarctica (Gressitt and Weber 1959), Australia (Roberts 1970), and New Zealand (Dumbleton 1961). To date, *I. auritulus* has not been reported from continental Africa, though Arthur (1965) argued that, in light of its very wide occurrence in the Southern Hemisphere, "it would seem reasonable to believe" that this tick will one day be found there. In this regard, Theiler (1959) cited two records of *I. auritulus* from Marion Island (46.52S, 37.51E), which lies over 1,900 km southeast of Cape Town, South Africa, but is administered by that country.

This is the first published report of *I. auritulus*—or any tick species—from *Cinclodes*. As such, it begs the question of whether *I. auritulus* parasitizes other members of this genus, which comprises about 13 species of ground-foraging and hole- or burrow-nesting South American ovenbirds (sometimes called shaketails) found in open habitats. Species of *Cinclodes* chiefly inhabit high-altitude streamsides in the Andes Mountains and Patagonia, and similar streamsides at lower elevations as well as seacoasts in the Tierra del Fuego and Cape Horn Archipelagos and the Falkland Islands

(Sibley and Monroe 1990, Ridgely and Tudor 1994, Vuilleumier, personal observation). Two subspecies of *C. antarcticus* have been described: nominate *C. a. antarcticus* from the Falkland Islands, where it is now most abundant on outer islands (Woods 1988, Strange 1992, Vuilleumier 1996); and *C. a. maculirostris* Dabbene, which is localized, and scarce to rare, from southernmost South America, where it is largely restricted to the archipelagos of Tierra del Fuego, Cape Horn, and Diego Ramírez (Hellmayr 1925, Ridgely and Tudor 1994, Vuilleumier, personal observation). Both subspecies occur mostly along seashores, where they forage for invertebrates, such as marine amphipods and mollusks, in the dense mats of seaweed and kelp (*Macrocystis* spp.) of the intertidal zone and in the peaty soil among tussocks of *Poa flabellata* (Lamarck) Raspail (Poaceae), a grass characteristic of the subantarctic zone (Moore 1983). *Cinclodes antarcticus* is often found in or near breeding colonies or resting aggregations of seabirds, especially penguins (Spheniscidae), albatrosses (Diomedidae), diving-petrels (Pelecanoididae) and petrels (Procellariidae), as well as such marine mammals as sea lions and fur seals (Otariidae) and elephant seals (Phocidae). Indeed, *C. antarcticus* can be regarded as a commensal of seals and seabirds in that it both lives among them and consumes their excreta. It is probably no coincidence that *I. auritulus* has been recorded from the same subantarctic areas where these seabirds and mammals breed or congregate in nonbreeding groups. Thus, in New Zealand, Dumbleton (1953) reported *I. auritulus* from the nest material of the diving-petrel *Pelecanoides urinatrix* (Gmelin), a species that is also abundant in the Diego Ramírez Islands (Schlatter 1984, Vuilleumier, personal observation).

We have located only three additional collections of *I. auritulus* from *Cinclodes*, all from species other than *C. antarcticus*: 1 ♀ ex *C. fuscus* (Vieillot), the bar-winged cinclodes, Perú: Cercapuquio (12.23S,

75.19W), 7.VI.1969, W.E. Dale, Rocky Mountain Laboratories (RML) No. 59286; 1 ♀, 2 nymphs ex *C. fuscus*, Chile: Isla Navarino (55.05S, 67.40W), 19.I.1964, G.E. Watson, RML 117504; and 1 nymph ex *C. patagonicus* (Gmelin), the dark-bellied cinclodes, Argentina: Bahía Buen Suceso (54.49S, 65.13W), 24.IV.1971, collector unknown (but likely either G.E. Watson or J.P. Angle of the U.S. National Museum of Natural History, or David Bridge, as all three men collected birds at Bahía Buen Suceso between 22 and 26 April 1971 (Paynter 1995)), RML 118083. *Cinclodes fuscus*, either a single species or a group of sister species, has the largest range of any member of its genus, occurring from northern Colombia and Venezuela to the Fuegian and Cape Horn archipelagos. It is probably also the most common *Cinclodes*, breeding chiefly at high elevations in the Andes and Patagonia, where it favors streamside habitats and moorlands (Vuilleumier, personal observation). Two individuals of *C. fuscus*, apparently paired, were studied by FV on Isla Gonzalo on 1 December 1985, but no evidence of nesting was detected. *Cinclodes patagonicus* is a locally common species that occurs in southern Chile and Argentina, including Tierra del Fuego and Cape Horn, where it may live sympatrically and syntopically with *C. antarcticus*, to which it may also be phylogenetically close. Although both *C. patagonicus* and *C. antarcticus* live along seacoasts, the latter is decidedly more maritime and is more intimately associated with marine birds and mammals (Vuilleumier, personal observation).

The records summarized here suggest that *I. auritulus* is capable of parasitizing any species of *Cinclodes* throughout the vast collective range of this genus. Unfortunately, they also suggest that, at the dawn of the twenty-first century, we have succeeded in sampling only a minority of suitable hosts and have barely begun to understand the ecological relationships between birds and their ectoparasites.

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LITERATURE CITED

- Arthur, D. R. 1965. Ticks of the Genus *Ixodes* in Africa. The Athlone Press, University of London.
- Arzua, M., D. M. Barros, P. M. Linardi, and J. R. Botelho. 1994. Noteworthy records of *Ixodes auritulus* Neumann, 1904 (Acari, Ixodida) on birds from Paraná, southern Brazil. *Memórias do Instituto Oswaldo Cruz* 89: 129.
- Arzua, M. and D. M. Barros-Battesti. 1999. Parasitism of *Ixodes (Multidentatus) auritulus* Neumann (Acari: Ixodidae) on birds from the City of Curitiba, State of Paraná, southern Brazil. *Memórias do Instituto Oswaldo Cruz* 94: 597–603.

- Cooley, R. A. and G. M. Kohls. 1945. The genus *Ixodes* in North America. National Institute of Health Bulletin 184: 1–246.
- Dumbleton, L. J. 1953. The ticks (Ixodoidea) of the New Zealand sub-region. Cape Expedition Series Bulletin 14: 1–28.
- . 1961. The ticks (Acarina: Ixodoidea) of sea birds in New Zealand waters. New Zealand Journal of Science 4: 760–769.
- Foster, G. W., J. M. Kinsella, R. D. Price, J. W. Mertins, and D. J. Forrester. 1996. Parasitic helminths and arthropods of greater shearwaters (*Puffinus gravis*) from Florida. Journal of the Helminthological Society of Washington 63: 83–88.
- Gressitt, J. L. and N. A. Weber. 1959. Bibliographic introduction to Antarctic-Subantarctic entomology. Pacific Insects 1: 441–480.
- Hellmayr, C. E. 1925. Catalogue of birds of the Americas. Part IV. Furnariidae-Dendrocolaptidae. Field Museum of Natural History Publication 234, Zoological Series, 13: i–iv, 1–390.
- Meyer de Schauensee, R. 1982. A Guide to the Birds of South America. Reprint with additions by Intercollegiate Press, Philadelphia.
- Monroe, B. L. and C. G. Sibley. 1993. A World Checklist of Birds. Yale University Press, New Haven, Connecticut.
- Moore, D. M. 1983. Flora of Tierra del Fuego. Anthony Nelson, Oswestry, United Kingdom, and Missouri Botanical Garden, St. Louis.
- Neumann, L. G. 1904. Notes sur les ixodidés. II. Archives de Parasitologie 8: 444–464.
- Paynter, R. A. 1995. Ornithological gazetteer of Argentina. Second edition. Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts.
- Pisano, V. E. 1972. Observaciones fito-ecológicas en las Islas Diego Ramírez. Anales del Instituto de la Patagonia, Punta Arenas 3: 161–169.
- Pisano, V. E. and R. P. Schlatter. 1981a. Vegetación y flora de las Islas Diego Ramírez (Chile). I. Características y relaciones de la flora vascular. Anales del Instituto de la Patagonia, Punta Arenas 12: 183–194.
- . 1981b. Vegetación y flora de las Islas Diego Ramírez (Chile). II. Comunidades vegetales vasculares. Anales del Instituto de la Patagonia, Punta Arenas 12: 195–204.
- Ridgely, R. S. and G. Tudor. 1994. The Birds of South America, Vol. II: The Suboscine Passerines. University of Texas Press, Austin.
- Roberts, F. H. S. 1970. Australian Ticks. CSIRO, Melbourne, Australia.
- Schlatter, R. P. 1984. The status and conservation of seabirds in Chile, pp. 261–269. In Croxall, J. P., P. G. H. Evans and R. W. Schreiber, eds., Status and Conservation of the World's Seabirds. International Council for Bird Preservation Technical Publication No. 2, Cambridge, United Kingdom.
- Sibley, C. G. and B. L. Monroe. 1990. Distribution and Taxonomy of Birds of the World. Yale University Press, New Haven, Connecticut.
- Strange, I. J. 1992. A Field Guide to the Wildlife of the Falkland Islands and South Georgia. Harper Collins Publishers, London.
- Theiler, G. 1959. African ticks and birds. Proceedings of the 1st Pan-African Ornithological Congress, Ostrich Supplement 3: 353–378.
- Vuilleumier, F. 1996. Is the avifauna of the Falkland (Malvinas) Islands impoverished or at equilibrium? Southern Connection Newsletter (10): 22–33.
- Woods, R. W. 1988. Guide to the Birds of the Falkland Islands. Anthony Nelson, Oswestry, United Kingdom.